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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,289	01/14/2005	Hubrecht Lambertus Tjalling De Blik	NL 020623	8513

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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EXAMINER

BROOME, SAID A

ART UNIT PAPER NUMBER

2628

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/521,289	Applicant(s) DE BLIEK, HUBRECHT LAMBERTUS TJALLING	
	Examiner Said Broome	Art Unit 2628	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1-14-05</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 8 is rejected under 35 U.S.C. 101 because it contains the statement: “A computer program characterized...”, which is non-statutory subject matter because a program must be encoded on a computer readable medium for causing the computer to execute in order to be considered statutory subject matter. Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim 1 recites “A method of producing and displaying an image...” however no tangible result is produced. Therefore, the claimed invention does not

posses “real world” value, and instead represents nothing more than a method of displaying and a computer program. The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”).

In State Street, the Federal Circuit examined some of its prior section 101 cases, observing that the claimed inventions in those cases were each for a “practical application of an abstract idea” because the elements of the invention operated to produce a “useful, concrete and tangible result.” *State Street*, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. For example, the court in *State Street* noted that the claimed invention in *Alappat* “constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced ‘a useful, concrete and tangible result’—the smooth waveform.” *Id.* Similarly, the claimed invention in *Arrhythmia* “constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete and tangible thing—the condition of a patient’s heart.”

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneider (US Patent 5,531,227).

Regarding claim 1, 8 and 9, Schneider describes a method of producing and displaying an image of a volume from a multi-dimensional object data set in column 8 lines 4-7 (“...to gather follow image information, an MRI scan of the patient's head and stereotactic frame is taken, and the three-dimensional data (including coordinate data relating to the patient's head and the stereotactic frame) are processed...”), and is also shown in Figure 2. Schneider also describes a computer system in column 7 lines 14-20 (“Processing means 16 may be a stand-alone computer such as a SGI RealityEngine (available from Silicon Graphics, Inc.) which has been loaded with suitable software. Alternatively, processing means 16 may be an image processor specially designed for this particular application.”) that performs the processing of the image graphics data, therefore the computer program or software recited in claim 8 is run on the computer system 16, as illustrated in Figure 2 and as recited in claim 9. Schneider describes a surface associated with the volume is identified in column 5 lines 13-26 (“Typically the lead view is the line of view through which the physician at any given time wishes to view the procedure...the lead view is the physician's view of the surface of the patient, the lead image could be a corresponding video image of the surface of the patient.”) and in column 9 lines 62-67 (“...real

*time lead images of the patient's head along the physician's line of sight are obtained...*”), where it is described that the user identifies a certain region of the surface. Schneider also describes an initial position on the identified surface is selected in column 9 lines 43-45 (“...*the fiducial marker can be added to the object prior to imaging solely for the purpose of providing a unique marker, such as a marker on the scalp. Such a marker would typically be selected to be visible...*”). Schneider also describes at least one depth associated with the identified surface is selected and a reformat slice is produced from the object data set at the selected depth along the normal to the identified surface at the selected initial position in column 11 lines 29-34 (“*The three-dimensional follow image is also sliced to a depth selected via a depth control.*”), where it is described that the follow image slice, which resides in the image plane orthogonal to the user, as described in column 5 lines 29-35 (“*A properly sliced and transformed follow image will usually be in a plane parallel with that of the lead image, and consequently, orthogonal to the lead view...*”), is therefore produced at a certain depth along the normal.

Regarding claim 2, Schneider describes at least one further position on the identified surface is selected in column 9 lines 59-62 (“...*the fiducial markers in the lead images have been identified, the system is ready for use in real time imaging during a medical procedure.*”), where it is described that multiple markers are used to identify surfaces. Schneider also describes a reformat slice is produced at said selected depth along the normal to the identified surface at said further selected position in column 11 lines 29-34 (“*The three-dimensional follow image is also sliced to a depth selected via a depth control.*”), where it is described that the follow image slice, which resides in the image plane orthogonal to the user, as described in column 5 lines 29-35 (“*A properly sliced and transformed follow image will usually be in a plane parallel with that of the*

*lead image, and consequently, orthogonal to the lead view...“), is therefore produced at a certain depth along the normal.*

Regarding claim 6, Schneider describes the reformat slice is perpendicular to the normal to the identified surface at the selected point on the identified surface, at the point on the reformat slice where the reformat slice is intersected by said normal to the identified surface in column 5 lines 29-35 (*“A properly sliced and transformed follow image will usually be in a plane parallel with that of the lead image, and consequently, orthogonal to the lead view...“*), where it is described that slices are orthogonal, or perpendicular, to the normal or line of view that corresponds to the identified surface at the selected position, as described in column 5 lines 12-15 (*“... ”lead view“ means the line of view toward the object at any given time. Typically the lead view is the line of view through which the physician at any given time wishes to view the procedure.“*).

Regarding claim 7, Schneider describes a reformat slice, which is slice produced from the three-dimensional image at a certain depth as described in column 11 lines 29-34 (*“The three-dimensional follow image is also sliced to a depth selected via a depth control.“*), and is produced from a stack of reformat slices produced perpendicular to the normal to the selected point on the surface, as described in column 2 lines 24-28 (*“A computer develops a three-dimensional image of the patient's skull (including the markers) by taking a series of "slices" or planar images at progressive locations, as is common for CT imaging, then interpolating between the slices to build the three-dimensional image.“*), where it is described that it is known in the art that three-dimensional volumetric images are a collection of several slices at different depth values, therefore the three-dimensional image , as described in column 10 lines 28-39

*(“...slicing algorithms involve designating a plane of slice in the three-dimensional image and instructing the computer to ignore or to make transparent any data located between the viewer and that plane...The resulting image is a two-dimensional representation of the view into the three-dimensional object sliced at the designated plane.”), is a stack of slices.*

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider in view of Burke et al.(hereinafter “Burke”, US Patent 6,421,454).

Regarding claim 3, Schneider describes reformat slices are produced perpendicular to the normal to the identified surface at the selected position in column 5 lines 29-35 (*“A properly sliced and transformed follow image will usually be in a plane parallel with that of the lead image, and consequently, orthogonal to the lead view...”*), where it is described that slices are orthogonal, or perpendicular, to the normal or line of view to the identified surface at the selected position. Schneider fails to teach the depth associated with the identified surface is selected by selecting one of those reformat slices. Burke teaches the depth associated with the identified surface is selected by selecting one of those reformat slices in column 11 lines 34-40 (*“The image processor 14 then selects (step 134) a planar slice at depth  $Z_n$  from the three dimensional ultrasound data, for example slice 125 which is parallel to the underlying transformed x-ray*



*image plane...*”), where it is described that the slice is selected at a certain depth. It would have been obvious to one of ordinary skill in the art to combine the teachings of Schneider with Burke because this combination would provide a user with three-dimensional slices of volumetric data that may present desired regions of the volumetric data through designation of a certain depth within the slices, such as by manually selecting the desired slice.

Regarding claim 5, Schneider fails to teach the limitations. Burke teaches an identified surface of the volume selected based on predetermined information, in column 11 lines 25-29 (“...*having previously determined and applied the proper scale, rotation and translations to align the x-ray information and stored the transformed images, the image processor 14 defines slices...*”), where it is described that the depth of the slices associated with the surface of the volumetric data may be predetermined.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider in view of Yanof et al.(hereinafter “Yanof”, US Patent 5,371,778).

Regarding claim 4, Schneider fails to teach the limitations. Yanof describes a transverse view, which includes the identified surface and the selected point in column 4 lines 53-58 (“...*the operator positions a cursor 30 at a selectable location on the first view port or portion 22 of the video display D. A second view port 32 displays the data along the transverse plane 10 through the position of the cursor.*”), where it is described that a transverse view is established which includes the identified surface and selected point. Schneider also describes the depth associated with the identified surface is selected from this transverse view in column 4 lines 62-64 (“...*the displayed (x,y) plane is selected by adjusting the selected distance along the z-axis.*”),

where it is described that the depth may be selected from the transverse view. It would have been obvious to one of ordinary skill in the art to combine the teachings of Schneider with Yanof because this combination would provide efficient volumetric interaction of slices depicting region of interest through modification of the depth of the transverse view of the volumetric data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S. Broome  
8/14/06 SB

  
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